Course Objectives

The aim of the course is to develop competency and ability to use statistical techniques in conducting research and project work. The emphasis of the course is more on interpretation of results and understanding of the strengths and limitations of different statistical measures.

Course Description

This course has a business focus. The course covers fundamentals of descriptive and inferential statistical techniques. The contents include data summaries and descriptive statistics; introduction to a statistical computer package; Probability: distributions, expectation, variance, covariance, statistical inference of univariateand bivariate data for hypothesis testing.

Course Outcomes

By the end of this course students would be able to

- understand and use the descriptive and inferential statistical tools used in business decision making ,
- select an appropriate graph to describe a distribution,
- calculate and interpret the shape, center and spread of a distribution,
- understand the problem of inference when working with the results from random samples, and
- analyze the data using excel.

Course Contents

Unit I Introduction   5 hours

Basic concepts of statistics, Terminologies associated with statistics such as populations and samples, Variables (Dependent and independent only) , Types and sources of data , Descriptive and inferential statistics, Data processing (editing and coding), Applications of statistics in business and management.

Unit II Describing Data: Graphs and Tables   6 hours

Data array, Stem and leaf Display, Frequency tables, Histograms, Polygon, Cumulative Polygon, Scatter plots, Simple Bar and Pie charts, Cross tabulation

Unit III Describing Data: Summary Measures   10 hours

Central Location: Mean, Median and Mode
Non Central Location: Quartiles, Deciles and Percentiles
Dispersion: Range, Interquartile range, Variance,   Standard deviation, Coefficient of variation, Index for qualitative variation (IQV)
Shape: Crude measure (comparison of mean, median, and mode), Five number summary,Box plot
Inequality Measure: Gini concentration ratio

Unit IV Basics of Probability Theory   **5 hours**
Basic concepts, Counting rule, Objective and subjective probability, Marginal and joint probability, Addition rule, Conditional probability, Multiplication rules, Bayes' Theorem.

Unit VProbability Distributions   **10hours**
Discrete probability distribution (Binomial and Poisson distribution and mean and standard deviation of their distributions), Continuous probability distribution: Normal distribution, Normal approximation of Binomial and Poisson distribution

Unit VI Estimation and Hypothesis Testing   **12 hours**
Concept of estimation, Confidence intervals, confidence intervals for means and proportions (one sample case only), Test of significance, p-value approach to hypothesis testing, connection between confidence intervals and hypothesis testing, comparing two means (two sample z and t-test procedures), and comparing two proportions.

Basic Books
Davis, G., & Pecar, B. *Business Statistics using Excel*. New Delhi: Oxford University Press
Berenson, M. L. & David M. L.*Basic Business Statistics: Concepts and Applications.* Upper Saddle River, New Jersey: Pearson Prentice Hall of USA.

References
Levin, R. I., & David S. R.*Statistics for Management.* New Delhi: Prentice Hall of India
Allbright, S. C., Winston, W., & Zappe, C. J. *Data Analysis and Decision Making with Microsoft Excel.* Pacific Grove: Duxubury Press.
Argyrous, G. *Statistics for Research with a Guide to SPSS* . New Delhi: Sage South India Edition
Whigham, D. *Business Data Analysis using Excel*. New Delhi: Oxford University Press

Course Objectives

The course aims to provide students with basic sociological concepts that will help students understand various ideas on society, culture, group, organizations, etc. By knowing all these concepts, students' knowledge on organization, business and management will be enhanced and such that they will be able to apply their enriched knowledge in their future career and endeavor.

Course Description

This course presents basic ideas and foundations of sociology through an argument of various sociological variables, terms, terminology and subject matter. The course includes, besides an introduction to sociology, basic sociological ideas like society, culture, norms, values group. It comprises of social institution like religion, family, and others, which help students understand more about existing social structure. More importantly, course has tried to explain the basic sociological theories, social change and some emerging social perception, understanding on sexuality, crime and deviance. Moreover, Max Weber's theory of bureaucracy, group and group behavior, sociology theories of organization are not less important to include in the course, since they will entail a nexus between sociology and management and basic sociological tenet.

Course Outcomes

By the completion of this course, the students should be able to:

- know the basic ideas on the emergence of sociology, methods of study, subject matter and nature of sociology;
- exhibit the understanding on the relationship of sociology with other social sciences and business-management;
- express the knowledge on foundations of sociology like society, culture, group, norms, values, etc., along with ideas on sexuality, crime, etc;
- analyze various social institutions like family, economic institutions, religion;
- understand and evaluate basic sociological theories and it connotation to management;
- can discuss social stratification to view how societies are divided into different groups on the basis of power, prestige and property and create inequality;
- evaluate the ideas of social change and socialization.

Course Contents

Unit I: Introduction to sociology   **6 hours**

Meaning of sociology; nature of sociology; subject matter of sociology; emergence of sociology and methods of sociology along with brief description on the contribution of founders of sociology; Relationship of sociology with economics, psychology, political science and business-management.

Unit II: Theoretical perspective in sociology   **8 hours**

What is perspective?

Functionalism: Meaning, context, basic tenets or key assumptions: Functionalism of Emile Durkheim and Talcott Parsons (Basic ideas with criticism).

Interactionism: Meaning, context, basic tenets or key assumptions : Interactionism of George Herbert Mead and Herbert Blumer (Basic ideas and criticism).

Conflict theory: Meaning, context, basic tenets or key assumptions: Conflict theory of Karl Marx and Max Weber (basic ideas and criticism).

Post modernism: meaning, context, basic tenets or key assumptions: Post Modernism of Fredric Jameson and Jean Baudrillard (basic ideas and criticism).

Unit III: The foundations of society   **14 hours**

Society: Meaning, Definition, nature and types (Industrial and pre-industrial).

Culture: Meaning, definition, features and functions; types (material and non-material); sub-culture (youth, ethnic and age sub culture vis-a-vis society and organization, e.g. Consumer behavior, organizational culture)

Norms, values, status and role: meaning, definition and types; linkage to business and management

Socialization: Meaning, definition and function of socialization; agents of socialization; types of socialization (primary and secondary socialization); theories of primary socialization; personality and socialization

Group and organization: Group- meaning, definition and features; types (various types with focusing on primary and secondary groups). Organization- meaning, definition (view from founding fathers of sociology); formal and informal organization; Max Weber's Bureaucracy; sociology of organization; work and leisure; group dynamics; dynamics of social capital

Sexuality: understanding sexuality; sexual issues (pornography, teen pregnancy, prostitution and sexual violence, sexual abuse)

Crime and deviance: Meaning, definition and difference between them

Conformity and sanction: meaning and definition

Unit IV: Social stratification   **7 hours**

Meaning, definition and features; Functional and conflict approach to social stratification; Stratification and inequality; Class, caste, ethnicity and gender as various aspects of social stratification- Meaning, definition, features and Nepalese context.

Unit V: Social Institution   **7 hours**

Meaning, definition ,features, function and types (as required by subject matter): family, marriage, polity, economic institution, religion (along with dysfunction), educational institution; Conflict and functional approach to religion and education; Nepalese context.

Unit VI: Social change   **6 hours**

Meaning, definition and features; Factors of social change; Conflict approach to social change; Application and experiences in Nepalese society.

Basic Texts
   1. Horton, P. B., & Haunt, C. L. *Sociology*. New Delhi: Tata McGraw Hill.

References

1. Abraham, M. F. *Contemporary Sociology: an introduction to concepts and theories*. New Delhi: Oxford University Press.
2. Abraham, M. F. *Modern Sociological Theory: An Introduction*. New Delhi: Oxford University Press.
3. Bhandari, U. et al. *Sociology for Management*. Kathmandu: Buddha Academic Enterprises.
4. Etzioni, A. *Modern Organization*. New Delhi: Prentice Hall of India. Pvt. Ltd.
5. Haralombos, M., & Heald, R. M. *Society: Themes and Perspective*. New Delhi: Oxford University Press.
6. Inkeles, A. *What is Sociology? An Introduction to Discipline and Profession*. New Delhi: Prentice Hall of India Pvt. Ltd.
7. Macionis, J. J. *Sociology*. New Delhi: Dorling Kindersley (India) Pvt. Ltd.
8. Ritzer, G. *Modern Sociological Theory*. USA: McGraw-Hill Companies, Inc.
9. Solomon, M. R. *Consumer Behaviour: Buying, Having and Being (8th ed.)*. New Delhi: PHI Learning Pvt. Ltd.
10. Turner, J. H. *The Structure of Sociological Theory*. Jaipur: Rawat publication.

Course Objectives

This course is designed to impart the students with the theory and practice of designing information systems to meet user needs, including problem investigation and the analysis, design and implementation of system. It will also familiarize students with system analysis and design tools. The objective of the course is to make students familiar with the basic principles of a systems development lifecycle, system modeling techniques, system requirement discovery and project management.

Course Description

This course introduces students to the fundamental concepts, philosophies and trends that provide the context of system analysis and design at the starting. After understanding these basics, students will be better able to apply, with confidence, the practical tools and techniques that will be learned on later sections. Additionally, students are required to dolab works using the various tools like Project and Visio.

Course Outcomes

By the end of this course, students should be able to:

- Learn about relationships between the stakeholders in system development.
- Understand an architectural look at information systems and methodology for developing the information system.
- Learn basics of project management.
- Learn specific system analysis skills and techniques for use-case modelling, data modelling, process modelling and object-oriented modelling.
- Learn various fact-finding techniques.
- Learn the process of system design and design strategies.

Course Contents

1. The Context of Systems Analysis and Design   **4 hours**

   1.1. System development Process: System Initiation, System Analysis, System Design, system Implementation, System Support and Continuous Improvement

   1.2. The Players- System Stakeholders

   1.3. Skills required for a Systems Analyst

   1.4. Business and Technology Drivers for Information System: E-Commerce and Business, TQM, BPR, Mobile and Wireless Technologies, Enterprise Applications

   1.5. Information System Development   **4 hours**

   1.6. Information Systems Building Blocks: Knowledge Building Blocks, Process Building Blocks, Communication Building Blocks

   1.7. Principles for Systems Development

   1.8. The PIECES framework for Problem Identification

   1.9. FAST methodology, Cross life-cycle Activities, Sequential vs Iterative development Automated Tools and Technology

2. Project Management   5 hours
   2.1. Introduction to Project Management
   2.2. The Project Management tools and techniques: PERT and Gantt Charts
   2.3. The Project Management Life Cycle
   2.4. Risk Management: Introduction to Risk, Risk Management Process(Risk Identification, Risk Analysis, Risk Planning, Risk Monitoring)

3. Systems Analysis   6 hours
   3.1. System Analysis, Systems Analysis Approaches
   3.2. The Scope Definition phase
   3.3. The Problem Analysis Phase
   3.4. The Requirements Analysis Phase
   3.5. The Logical Design Phase
   3.6. The Decision Analysis Phase

4. Fact- Finding Techniques For Requirements Discovery   6 hours
   4.1. An Introduction to System Requirements and its types
   4.2. The Process of Requirements Discovery
   4.3. Fact-Finding Techniques: Sampling, Questionnaires, Interviews, Discovery Prototyping, Joint Requirements Planning (JRP)
   4.4. Use-Case Modelling: Introduction to Use-cases, Actors, Relationships
   4.5. Process of Use- Case Modelling for Requirements

5. Data Modeling   5 hours
   5.1. An Introduction to Data Modeling: Entities, Attributes, Relationships;
   5.2. The Process of Logical Data Modeling
   5.3. How to Construct Data Models: Entity Discovery, The Context Data Model, The Key-Based Data Model, Generalized Hierarchies, The Fully Attributed Data Model;
   5.4. Mapping Data Requirements to Locations(CRUD Matrix)

6. Process Modeling   6 hours
   6.1. Introduction to Process Modeling
   6.2. System Concepts for Process Modeling
   6.3. The Process of Logical Process Modeling
   6.4. How to Construct Process Models
   6.5. Synchronizing of System models

7. Object-Oriented Analysis and Modeling   5 hours
   7.1. An Introduction to Object Oriented Analysis
   7.2. System Concepts for Object Modeling
   7.3. Modeling the Functional Description of the System
      7.3.1. Constructing the Analysis Use-Case Model
      7.3.2. Modeling the Use-Case Activities (Activity Diagram)
      7.3.3. Drawing System Sequence Diagrams

8. Feasibility Analysis   **3 hours**

    8.1. Feasibility Analysis

    8.2. Types of feasibility: Operational Feasibility, Technical Feasibility, Schedule Feasibility, Economic Feasibility, Cultural/Political Feasibility, Legal Feasibility;

    8.3. Feasibility Analysis of Candidate Systems

9. Systems Design Methods   **4 hours**

    9.1. Systems Design Approaches

    9.2. System Design for In-house Development-The "Build" Solution

    9.3. System Design for Integrating Commercial Software- The "Buy" Solution

Laboratory Work

There shall be 10 lab exercises based on Project Scheduling, Object Modelling, Process Modelling and Data Modelling which will be done on MS-Project and MS-Visio

1. Familiarization with tools in MS-Project
2. Creation a Project Schedule and creation of Work-Breakdown Structure(enter Tasks and Create Summary tasks and subtasks)
3. Creation of a Gantt Chart (Estimate Task Durations, Enter milestones, Enter deadlines, Indicate Task Dependencies, Assign People Resources)
4. Familiarization with tools in MS-Visio
5. Creation of Data flow Diagram(DFD)
6. Creation of Entity-Relationship Diagram(ERD)
7. Creation of Use-Case Diagram
8. Creation of conceptual model(Class) Diagram
9. Creation of Activity Diagram
10. Creation of Sequence Diagram

Basic Texts

Whitten, Jeffery L.,Lonnie, D. &Bently, Kevin (7th Edition), *Systems Analysis and Design Methods*McGraw Hill Irwin, 2008.

Sommerville, Ian. (7th Edition), *Software Engineering – (*For Unit 4.4)

CMP 264Numerical Methods
(BCIS 3rd Semester)

Course Objectives

To be familiar with the theory and algorithms of numerical methods for solving nonlinear and set of algebraic equations, interpolation from given set of data, numerical differentiation and integration, solution of ordinary and partial differential equations.

Course Description

The numerical methods course involves solving engineering problems drawn from all fields of engineering. It includes error analysis, roots of nonlinear algebraic equations, solution of set of equations, curve fitting and interpolation, numerical integration and differentiation, solution of ordinary and partial differential equations. It also deals with the algorithm of solution of various methods that can be implemented in a digital computer.

Course Outcomes

At the end of this course, the students are expected to be able to:
- know the mathematical background for the different numerical methods
- understand the different methods for numerical solution of the nonlinear equations and solution of system of linear and nonlinear equations
- understand the different numerical methods for interpolation and data fitting
- know the numerical differentiation, integration and solution of set of ordinary and partial differential equations
- understand how numerical methods are used to solve various problems which are difficult to solve by analytical method
- know how numerical method can generate solutions in a manner that can be implemented on digital computers

Course Contents

1. Introduction   **4 hours**

2. Importance of numerical methods, Review of calculus, Taylor's theorem, Errors in numerical computations, Use of computer programming in numerical methods

3. Solution of Nonlinear Equations   **8hours**

Nonlinear equations and their solutions, Trial and error method, Graphical method, Iterative methods: Bisection method, False position method, Secant method, Newton's method and Fixed point iteration method, Rate of convergence of iterative methods, Newton's method for polynomials and Horner's rule

4. Solution of Set of Algebraic Equations   **9 hours**

Existence of solutions for linear set of equations, Gaussian elimination method, pivoting, ill-conditioning, Gauss-Jordan method, Matrix inversion, Matrix factorization: Doolittle

algorithm, Cholesky's factorization, Iterative solution using Gauss Seidel method, Eigen value and eigen vector using power method

5. **Interpolation and Approximation**   **8 hours**

Lagrange interpolation, Newton's interpolation using divided differences and difference table, Cubic spline interpolation, Least squares method of fitting linear and nonlinear function for given data

6. **Numerical Differentiation and Integration**   **6 hours**

Numerical differentiation formulas, Maxima and minima of a tabulated function, Newton-Cote's quadrature formulas: Trapezoidal, Simpson's 1/3 and 3/8 rule, Romberg integration, Gaussian integration

7. **Solution of Ordinary Differential Equations**   **8 hours**

Review of differential equations, Initial value problem, Taylor series method, Euler's method and its accuracy, Henu's method, Runge-Kutta methods, Solution of higher order equations, Solution of boundary value problems using finite difference and Shooting method

8. **Solution of Partial Differential Equations**   **5hours**

Review of partial differential equations, Deriving difference equations, Solution of Laplacian equation and Poisson's equation

Laboratory Work

The laboratory experiments will consist of program development and testing of nonlinear equations,Linear algebraic equations, Interpolation, Numerical integration and differentiation, ordinary and partial differential equations.
Some of them are listed below:
- To solve nonlinear equation using bisection method, secant method, Newton Raphson method
- To solve polynomial equation
- Solving set of linear algebraic equations using Gauss elimination method
- Finding largest Eigen value and corresponding eigenvector by Power method.
- Interpolation using Lagrange interpolation and Newton's interpolation
- Curve fitting by Least square method.
- Numerical differentiation,numerical integration using trapezoidal and Simpson'srule
- Solution of differential equation using Euler's method, RK-4 method
- Solution of partial differential equation
- Using MatLab for solution of numerical problems

References
Gerald,C.F. & P.O. Wheatly, *Applied Numerical Analysis*
Balagurushamy, E.*Numerical Methods*
Chency, W.& D. Kinciad, *Numerical Mathematics and Computing*
Press, W. H.,B.P. Flannery et.al., "*Numerical Recipes in C*"

Course Objectives

This course will provide the fundamental knowledge to understand the basics, operation, programming and application of microprocessor and brief insight into computer architecture.

Course Description

This is a fundamental course for the microprocessor and computer architecture. 8085 microprocessor is taken as an example processor to deal with the details of the microprocessor. The course introduces about the microprocessors system and gives idea for assembly language programming and machine language programming with 8085 microprocessor. The course also deals with the hardware aspects of microprocessors such as memory interfacing, input/output interfacing, interrupt handling and some typical interfacing chips such as PPI and USART. The course also introduces the students about the parallel systems and different processor architecture.

Course Outcomes

After the completion of the course, students should be able to

- know basics of microprocessor and microprocessor based systems
- know the internal architecture of microprocessor
- write assembly language program
- solve various instructions such as data transfer, arithmetic, logical, branching etc. to solver various problems
- know various microprocessor operations and their timing diagrams
- interface various devices such as keyboard and seven segment displays
- know various interfacing standards
- handle interrupts
- have an idea about parallel systems and different processor architectures

Course Contents

1. Introduction   4 hours

Introduction and History of Microprocessors, Basic Block Diagram of a Computer, Bus Organization with Microprocessor Based System, Stored Program Concept and its Processing Cycle, Microprogrammed and Hardwired control unit.

2. Intel 8085 Microprocessor Architecture and Programming   12 hours

Internal Architecture of 8085 microprocessor, Features of 8085 microprocessor, Instruction and Data format, Operation Code and Operands, Addressing Modes of 8085, Instruction Set of 8085, Assembly language programming with 8085 microprocessor.

3. Microprocessor System   8 hours

Pin Configuration of 8085 microprocessor, Microprocessor Operations, Fetch Operation and Timing Diagram, Execute Operation and Timing Diagram, I/O and Memory Read/Write Timing Diagrams, Memory Device and Classification, I/O Address Decoding, Memory Address Decoding

4. Basic I/O Interfacing   12 hours

Parallel Interfacing, Serial Interfacing, Modes of parallel transfer, Introduction to 8255A Programmable Peripheral Interface(PPI), 8255 Operating modes and programming, Interfacing with keyboard and seven segment display, Synchronous and Asynchronous Serial Transmission, RS 232 Standard, Connection between DTE and DTE, Introduction to USART 8251, Basic DMA operation, DMA Controlled I/O, The 8237 DMA Controller, Introduction to ISA, PCI, AGP and USB Interface standards.

5. Interrupt handling   6 hours

Polling and Interrupt, Interrupt processing sequence, Interrupt service routine, interrupt handling with 8085, Introduction to 8259, Using 8259 with 8255.

6. Advanced Topics   6 hours

Parallel and concurrent systems, Different level of parallelism (instruction level, process level and thread level parallelism), Register based and accumulator based architecture, RISC and CISC architecture

Laboratory Work

Assembly language programming using 8085 trainer kit. The programming should include: data transfer, arithmetic operation, logic operation, conditional branching, base conversion etc.

References

Gaonkar, Ramesh S.: *Microprocessor Architecture, Programming, and Applications with 8085,* Prentice Hall, New Delhi

Hall, Douglas V.: *Microprocessor and Interfacing programming and Hardware,*McGraw Hill, New Delhi

Uffenbeck, „John . *Microcomputers and Microprocessors, The 8080, 8085 and Z-80 Programming, Interfacing and Troubleshooting,* 3rd Edition 1999, Prentice Hall, New Delhi

ACC 121 Financial Accounting I
(BCIS 4th Semester)

Course Objectives
The aim of this course is to provide students with an understanding of the basic concepts, principles, procedures and techniques underlying the accounting process and make them able to prepare financial statements of an organization.

Course Description
The course will cover the nature, scope and function of accounting; basic fundamental concepts and generally accepted accounting principles and practices; the accounting cycle; journalizing adjusting entries, preparation of financial statements; accounting for cash and cash equivalent transaction. The course will also include computer-based project work / case studies.

Course Outcomes
By the end of this course, students should be able to:
- understand accounting concepts, GAAP and accounting standards, and their role;
- introduce the legal and practical aspects of financial reporting with its components and characteristics;
- identify the difference between accrual and cash basis accounting, and carry out adjusting entries;
- prepare financial statements i.e. income statement, balance sheet and cash flow statement;
- explain cash and cash equivalents and prepare bank reconciliation statement;
- appreciate the role of accounting software applications play in gathering, recording, reporting and interpreting financial accounting information; and
- use computers to record and process business transactions.

Course Contents
Unit I: The Conceptual Foundation of Accounting   7hours
Accounting as a language of business, forms of business organizations, types of activities performed by business organization; Users of accounting information: internal and external; Qualitative characteristics of accounting information; The accounting profession, role and activities of an accountant; The accounting framework - basic accounting assumptions, concepts, GAAP, definitions and terminology, Accounting information system in modern business organizations; Use of computers in accounting process.

Unit II: Basics of Corporate Reporting   5 hours
Legal requirements of accounting, provisions of Company Act relating to accounting, introduction to accounting standards (IFRS and NAS), annual report, major components, basic components of financial statements, basic financial statements: Income Statement, Balance Sheet, Statement of Changes in Equity, Cash Flow Statement, Accounting Policies and Notes.

Unit III: Processing and Recording Business Transactions   6 hours
The Basis for Recording Transactions: Sources of accounting information, External and internal events; Accounting transaction, the accounting equation and analysis of transactions, the role of source documents.

The Double Entry System: Debits and credits and its rules; The journals; T account; General ledger; Normal account balances; Objectives and preparation of trail balance; Use of excel in processing business transaction.

Unit IV: Accrual Accounting and Adjustments   12 hours
Adjusting Entries: The revenue recognition principle, matching principle; Cash verses accrual basis of accounting, The need for adjusting entries; Types of adjusting entries; Journalizing adjusting entries; Effects of failing to prepare adjusting entries, Preparation of adjusted trial balance.

Worksheet and Accounting Cycle: Preparation of ten and twelve column work-sheet; Preparing financial statements from the work sheet The closing process; Post-closing trail balance; Completion of accounting cycle.

Unit V: Preparation of Financial Statements   12 hours
Income Statement: Concepts and major components; revenues, cost of goods sold, gross profit, net income and retained earnings; statement of retained earnings, preparation of income statement with vertical multi-step format.

Balance Sheet: Concepts and major components; assets, liabilities and stockholders' equity; preparation of balance sheet under vertical- classified format;use of computers in preparation of income statement and balance sheet**.**

Cash Flow Statements: Cash flows and accrual accounting; purpose of the statement of cash flows; financing, investing and operating activities; formats of statement of cash flows; preparation of cash flow statement using direct method, Reconciling cash flow under operating activity using indirect method, use of computers in preparation of cash flow statement.

Unit VI: Accounting for Cash and Cash Equivalents   6 hours
Components of cash and cash equivalents; preparation of the bank reconciliation statement and the need for adjustments to accounting records; petty cash, balance sheet presentation of cash and cash equivalent, Internal control system; Cash control: receipt and disbursement.

Basic Text
Porter, G. A., & Norton, C. L. *Financial Accounting: The Impact on Decision Makers*. USA: The Dryden Press.

References
Hermanson, H. R., & Edwards, D. J. *Financial Accounting: A Business Perspective*. USA: Von Hoffmann Press.
Kimmel, P. D., Weygandt, J. J., &Kieso, D. E. *Financial Accounting.*New Delhi: Wiley India Pvt. Ltd.
Narayanswamy, R. *Financial Accounting: A Managerial Perspective*. New Delhi: Prentice Hall of India.

Koirala, M. P., Acharya, C., Sharma, L. P. B., Sharma, N., &Gautam, C. M. *Financial Accounting*. Kathmandu: Buddha Academic Enterprises.

Nepal Accounting Standards (NASs)

International Accounting Standards (IASs) / International Financial Reporting Standards (IFRSs)

SIT 201 Data Analysis and Modeling
(BCIS 4th Semester)

Course Objectives

This course aims to acquaint students with major statistical and quantitative tools used in modeling and analysis of business decision involving alternative choices.

Course Description

The component of the course includes regression analysis and models, time series analysis, and forecasting, linear programming models and applications, transportation and assignment models, network models.

Course Outcomes

By the end of this course students would be able to

- calculate and interpret the meaning of correlation coefficient to measure the strength of relationship between two numerical variables,
- calculate and interpret the meaning coefficient of determination to measure the predictive power of the simple as well as multiple regression,
- forecast the future values using various models, and
- optimize the resources in the business decision making process.

Course Contents

Unit I Simple Correlation and Regression Models:

Measuring and Predicting Relationships   **8 hours**

Correlation: Meaning, Scatterplot, Karl Pearson correlation coefficient, Test of correlation coefficient.

Simple Linear Regression: Predicting of One Variable from Another

Statistical model, Least square regression- assumptions, Standard error of estimate, Coefficient of determination, Residual Analysis, Testing of regression coefficient.

Unit II Multiple Regression Models:

Predicting One Factor from Several Others   **8 hours**

Multiple regression model, Standard error of estimate, Coefficient of determination, Significance of regression model, Test of significance of regression coefficients (Which variables are significant and explaining the most?), Model building, Curvilinear models, Qualitative variables, Stepwise regression, Residual analysis,Multi-colinearity.

Unit III Index Number and its Construction Models   **5 hours**

Introduction, Definition of index number, Uses of index number, Types of index number, Methods of constructing index number ,Base shifting, Deflation, Cost of living index.

Unit IVTime Seriesand Forecasting Models   **10 hours**

Index number, Understanding time series analysis, Decomposition of time series, Cyclic variation, Seasonal variation, Deseasonalizing the time series data (Ratio to moving average method),   Choosing the appropriate forecasting technique, Moving average, Exponential

smoothing, Regression based linear and curvilinear trend models, Measures of forecast accuracy (MAD,MAPE, and MSE).

Unit VIntroduction to Optimization Models   **12 hours**
*Review of Linear Programming Model:*Problem formulation, Graphical solution, special cases, Duality in LP
Transportation Model: Vogel's Approximation Method only
Assignment Model: Hungarian Method only

Unit VI: Network Models   **5 hours**
Introduction, Critical Path Method (CPM), Project Evaluation and Review Technique (PERT), Network diagram, Probability in PERT analysis

Basic Books

Davis, G., & Pecar, B. *Business Statistics using Excel*. New Delhi: Oxford University Press
Berenson, M. L. & David M. L.*Basic Business Statistics: Concepts and Applications.* Upper Saddle River, New Jersey: Pearson Prentice Hall of USA.
Eppen, G. D., Gould, F. J. & Schmidt, C.P. *Introductory Management Science*. New Delhi: Prentice Hall
Richard I. Levin, David S. Rubin, Joel P. Stinson, Everette S. Gardner, Jr. Quantitative Approaches to Management. McGraw-HILL, INC.

References
Levin, R. I., & David S. R. *Statistics for Management*. New Delhi: Prentice Hall of India.
Panneerselvam, R.*Research Methodology*. New Delhi: PHI Learning Private Limited.
Allbright, S. C., Winston, W., & Zappe, C. J. Data Analysis and Decision Making with Microsoft Excel. Pacific Grove: Duxubury Press.
Argyrous, G. *Statistics for Research with a Guide to SPSS*. New Delhi: Sage South India Edition
Whigham, D. *Business Data Analysis using Excel*. New Delhi: Oxford University Press

MGT 211 Fundamentals of Organizational Behaviour
(BCIS 4th Semester)

Course Objectives

Managers need to know why people behave as they do in relation to their jobs, their work groups and their organizations. This knowledge of individuals' perceptions, motivational attitudes and behaviour will enable managers to not only understand themselves better, but also to adopt appropriate managerial policies and leadership styles to increase their effectiveness. The goal of this course is, therefore, to help students develop a conceptual understanding of OB theories and to provide them with skills to put those ideas and theories into practice.

Course Description

Students are first exposed to fundamentals of organizational behavior such as working with people, the nature of organizations, communication, leadership, and motivation of people. They will thenbe provided with the knowledge and skills to deal with group behavior, leadership, communication, conflict management, and organizational development issues. The focus of instruction will move progressively through the individual, group and organizational levels of behaviour and will examine the interrelationships of behaviourial phenomena among these levels.

Course Outcomes

On completion of this course, students will be able to:
- explain the determinants of behavior and the emerging concepts in organizational behaviour;
- understand the importance of organizational behavior in managerial functions;
- understand the definition and concepts of behavior, group and teams, organizational structure, employee motivation, organizational communication, leadership, conflict and stress, organizational change and development;
- form an appreciation of the complexities and uncertainties of organizational behaviour by examining managerial roles;
- demonstrate clear understanding of the concepts and established theories relating to organizational behavior;
- explain and evaluate the key assumptions on which behaviour in organizations is managed and assess the effects of these ideas on employee attitudes and actions.

Course Contents

Unit I: Introduction to Organizational Behaviour   5 hours

Concept and significance, OB system; basic assumptions,levels of OB analysis,contributing disciplines,emerging trends and challenges in OB,determinants of behaviour – beliefs,attitudes,values,emotions and behaviour.

Unit II: Perception, Personality and Learning   10 hours

Perceptual process, factors influencing perception, perception and individual decision making; Learning – concept and significance of learning, factors influencing learning,major models of learning – classical conditioning, operant conditioning, cognitive learning and social learning;

Behaviourmodification;Personality – concept, types, determinants, individual differences, personality attributes influencing behavior.

Unit III:OrganizationStucture,Group Dynamics and Team Development   8 hours
Organization - foundations of organization structure, job design; Human factors in organizing; Organizational Culture - meaning, importance and characteristics of organization culture.Group dynamics – definition and importance, types of groups, group formation, group development, group composition; Work teams – types,team performance factors, building effective work teams, group decision making, issues in managing work teams.

Unit IV: Motivation and Leadership   10 hours
Motivation: process of motivation,theories of motivation – need hierarchy theory, two factor theory, ERG theory, expectancy theory, equity theory; Leadership - concept; Leadership styles; Leadershiptheories – trait theory, behavioural theory, Fielder's contingency theory, Managerial Grid, Path-Goal theory; Emerging issues in motivation and leadership.

Unit V: Organizational Conflict and Stress   5 hours
Concept,sources, patterns, levels, and types of conflict; traditional and modern approaches to conflict management,functional and dysfunctional organizational conflicts,resolution of organizational conflicts; Organizational Stress – concept, causes, consequences, managing stress.

Unit VI: Interpersonal and Organizational Communication   5 hours
Concept of two-way communication,communication process,barriers to effective communication,types of organizational communication,improving communication,transactional analysis in communication.

Unit VII: Organizational Change and Development   5 hours
Concept,need for change, resistance to change,theories of planned change,organizational diagnosis; OD intervention; Learning organizations – concept, characteristics and model of learning organization.

Basic Texts
Robbins, Stephen P.*Organizational Behaviour*, Prentice Hall, New Delhi.
McShane, S.L., M.A.V. Glinow and R.R. Sharma, *Organizational Behaviour*, Tata McGraw
    Hill, New Delhi.
King, Daniel &Lawley, Scott, *OrganizationalBehaviour,* Oxford University Press.

References
Adhikari, D. R. *Organizational Behaviour*, Buddha Publications, Kathmandu.
Acharya, B. S. *Organizational Behaviour*, Asmita, Kathmandu.
Arnold, H. J. and D. C. Feldman, *Organizational Behaviour*, Tata McGraw Hill, New Delhi.
Newstrom, John W. and Keith Davis.*Organizational Behaviour: Human Behaviour at Work,*
    Tata McGraw-Hill, New Delhi.
Luthans, Fred.*Organization Behaviour*, Tata McGraw-Hill, New Delhi.
Bhattacharya, D. K. *Organizational Behaviour*. Oxford University Press, New Delhi.

CMP 262 Database Management Systems
(BCIS 4th Semester)

Course Objectives
The main objective of this course is to introduce students to fundamentals of datamanagement technology by studying databases from three viewpoints: those of the database user, the database designer, and the database administrator.

Course Description
This course will concentrate on the principles, design, implementation and applications of database management systems. Topics include database management systems, relational database management system, structured query language, database design and the E-R Model, relational database design, transactionconcurrency control, recovery system.

Course Outcomes
On completion of the course, students should be able to
- understand the different issues involved in the design and implementation of a database system.
- study the physical and logical database designs, database modeling, relational, hierarchical, and network models.
- understand and use data manipulation language to query, update, and manage a database
- develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency, distributed database, and intelligent database, Client/Server (Database Server),
- design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Course Contents

Unit One: Introduction   **3 hours**
Database management systems and its applications, Purpose of Database systems, View of Data, Data models, Database Language, Instances and schemes, Database users and administrators, Application architecture(one tier, two tier, n-tier)

Unit Two: Database Design and the E-R model   **7 hours**
E-R model, Entity sets,Relationship sets, Attributes, Constraints, Mapping Cardinalities, Participation constraints, Keys (Super key, Candidate key, Primary key), Entity Relationship Diagram, Basic Structure, Mapping Cardinality, mapping cardinalities in E-R DIAGRAM, Complex attributes, Roles, non-binary relationship sets, Weak, strong entity sets, E-R Diagram (case study), Extended E-R Features, Specialization, Generalization, Constraints on Generation, Aggregation, E-R Diagram with Aggregation

Unit Three: Introduction to the Relational model   **6 hours**

Structure of Rational database, Database Schemes (case study), Keys, Schema Diagram, Rational Query Language, Relational operations.

Unit Four: Introduction to SQL   **13 hours**
Overview of SQL Query language, SQL Data Definition, Basic types, Basic Schema Definition, Basic Structure of SQL Queries (single, multiple), Natural join, Additional Basic Operations, Set operational (union, intersect, except), Null Values, Aggregate function (Basic, Grouping, Having, Nested sub-queries (comparison, empty relating from clause) Scalar sub-queries), Modification of the database.(insert, update, delete), Join Expression, join conditions, outer joins, view, materialized view, Transaction (commit, Rollback), Integrity constraints (not null, unique, check, referential integrity), Authorization (Grant, Revoke), Roles, view, transfer of privileges, revoking of privileges, Functions and Procedures, Declaring and Revoking SQL functions and Procedures, Language constraints for procedures and functions, Triggers, indexes

Unit Five: Relational Database Design   **7 hours**
Database anomalies, Functional Dependencies, Basic Concepts, Closure of set of Functional Dependencies, closure of attribute set, Decomposition, Lossless Join Decompositions, Dependency preservation, Normalization, First Normal Form, Second Normal Form, Third Normal Form, Boyce -Codd Normal Form, Comparison of BCNF and 3NF

Unit Six: Transactions   **4 hours**
ACID Properties, Simple transactions models, Storage structure, transaction atomicity of durability, Transaction Isolation, Serializibility, transaction isolation and atomicity, Locking, timestamp

Unit Seven: Concurrency Control   **4 hours**
Lock-Based protocols, Dead-lock handling, Multiple Granularities, Time-stamp Based Protocols, Validation based protocols

Unit Eight: Recovery System   **4 hours**
Failure classification, Storage, Recovery and atomicity, Recovery Algorithm, Buffer management, Failure with loss of non-volatile storage, Early lock release and logical undo operations, Remote Backup systems

Note: Students are required to complete the project. Project should be done on group at most 4-5 number of students. Format of project report is given below:
- Project Description
- Description of entities or object consideration in the project
- Algorithm or Diagram showing description of project
- Conclusion of the project.

Basic Texts
Silberschatz,,Abraham , Henry F. Korth, S. Sudarshan*Database system concepts*: McGraw Hill 6th Edition, New Delhi

References

Post,Gerald V.: *Database Management Systems*, McGraw Hill International Edition, New Delhi

Ramezelmasri, B. Navate, Fu*ndamentals of Database System*s, Pearson Education Asia

CMP 265Internet Technology (Web Programming)
(BCIS 4th Semester)

Course Objectives
This course is designed so that students can interact with the real world programming beyond just the theoretical knowledge. This course will help students to create web applications. The main objective of this course is to meet the current market need for a web developer.

Course Descriptions
We cover some fundamental of web environment, how it is designed and how an actual application is created. This course covers all the creating as well as debugging and implementing it in the real world. This course deals with some latest technology in web programming like HTML 5 / CSS 3 etc. The important factors that are the issues in real life like browser compatibility, security implementation of XML are covered in this syllabus. Web application uses framework and object oriented programming in a real scenario which is also covered in the syllabus. This will really help students to meet the criteria that the market needs from a technical student.

Course Outcomes
After completion of the course, students should be able to:
- design web sites
- understand the real world programming need
- debug the fault that appears in the code.
- create user friendly environment.
- create browser compatible web applications.
- solve a problem, i.e. the course is planned in such a way that instructors do not fix the problem but teach students how to fix it.

Course Contents

I.   Web Environment   **2 hours**

     Introduction, History, Client Server Architecture, Web Site Design

II. HTML/CSS   **4 hours**

III. Review of HTML Tags (formatting, links, images, table, forms, frames etc.), Getting started with HTML5, CSS 3, Responsive design, and Browser compatibility

IV. Introduction to XML and XHTML   **3 hours**
V.   XML, DTD, XSTL, XHTML

VI. Client Side Scripting   **8 hours**

Java Script: Introduction, Operator, Control, DOM, Array, Object, Smart Form, Class and objects, jQuery: Using jQuery, element finder, events and animations.

VII. Server Side Scripting (Basic)   **7 hours**

PHP: Setup/Getting started, Operators, Control, Array, Function, String operations, Math functions, Using Regx, Exception handling

VIII. Server Side Advance   **8 hour**

Class and objects, inheritance, polymorphism, Session, Database Connectivity, CRUD Operation, working with files, garbage collection, Magic quotes, send receive emails, Introduction to CMS

IX. Security Considerations   **5 hours**

Principle of Cryptography, Authentication, Encryption/Decryption, Digital Certificates, Digital signature, Secure Socket Layer, VPN

X. Electronic Payment   **2 hours**

Electronic Cash, Credit Card Processing, Electronic Check Processing, Gift and Prepaid Certificates, Payer Authentication, Smart Authorization

XI. Legal Issues   **2 hours**

On-Line Contract Law, Consumer Transaction, Digital Copyright, Taxation

XII. PHP Framework   **6 hours**
a.   MVC Model
b.   Getting Started with PHP Framework

Note: Students should create a project as am,endatoryrequirement for the completion of this subject. The project should use HTML5, CSS3, JS, XSL, PHP and MySql.

Laboratory Work
1. Creating a simple static web site with 4 pages, using HTML5 and CSS3.
2. Creating a form with all the elements and validating it using client side scripting.
3. Creating jQuery Slider and image gallery
4. Use jQuery date picker and sort
5. Create Login form and authorize it also use sessions
6. Create a form to upload images using php
7. Create a form to add data to database
8. Create a form to implement CRUD operations

Note: Each of the above lab sessionsshould cover more than 4 hours of practical work.

Basic Text
Ivan Bayross*Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP* 4th edition Bpb Publications

References
Niederst,Jennifer. *Web design in a Nutshell*O'Reilly (http://www.oreilly.com)
 Kenneth C, Laudon, Carol Guercio. Traver, *E-commerce Business, Technology and Society* Prentice Hall; 9 edition New Delhi

Project works enhance students learning, processing and thinking ability. Computer courses in Information Technology, being dynamic in nature and increasing in scope requires "project works" to be an inseparable part of its learning.

The project work assisted by experience of an expert in the respective field supports students the way and manner in which projects are handled and executed for an optimal result. Students are highly encouraged to use the knowledge of JAVA programming language, System Analysis and Design and Concepts on Database Management Systems.

Purpose
The purpose of the project is to learn how to formulate applications and to experience how to solve problems using methods, algorithms and techniques included syllabus. The students will conduct experimental evaluation on dataset and will analyze the business implications of the obtained solutions. Students are encouraged to identify new problems, tasks and applications.

Outcomes
- Knowledge of real time working environment.
- Knowledge of basic to high level of programming and implementation of business logic.
- Knowledge of Software Development Processes and its challenges.
- Knowledge to bridge the gap between academic knowledge and industry requirements.

Tools
Front end: JAVA
Back End: Preferred Database
IDE: Netbeans

Evaluation
Students' project work will be evaluated by project supervisors and internal examiners on the basis of project report, project demonstration and presentation.